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# Supplement to “Checklist of the checkered beetles of Namibia” (Coleoptera, Cleridae)

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## Abstract

After presenting the first checklist of Cleridae of Namibia, this supplement includes results of the 2019 expedition of the author, data from Hans Mühle, Munich and reports on the genus *Korynetes* (published by Opitz 2018). It includes the label data (locations) from newly collected specimens, distribution maps and colour photos of *Eucymatodera speciosa*, new record for Namibia and *Eucymatodera* sp. 4. Consequently the number of checkered beetle species of Namibia increases to 45 species.

**Keywords:** Cleridae, checklist, Namibia, distribution maps, colour habitus photo.

## Introduction

As mentioned in the first publication on Cleridae of Namibia (Gerstmeier 2018), some collecting gaps, especially in the northern and north-eastern parts are striking. An expedition during March 2019 showed some new results for the checkered beetle fauna of Namibia.

## Material and Methods

All records are based on UV light-trapping, the light traps installed in trees in about 5-6 m height. The collecting was approved by a research permit (RPIV00012018) of the National Commission on Research, Science and Technology (NCRST). The specimens will be split between the collection of the National Museum of Namibia and the author's collection. Map 1 shows all cited locations, red dots indicate the new localities.

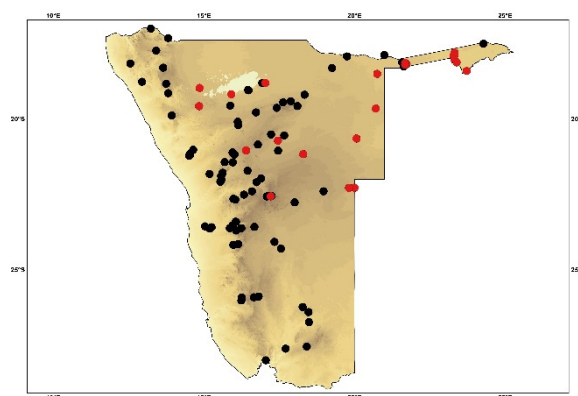
Abbreviations are:

RGCM = Roland Gerstmeier Collection, Munich, Germany

SDEI = Senckenberg, Deutsches Entomologisches Institut, Müncheberg, Germany

TMSA = Ditsong National Museum of Natural History, Pretoria, South Africa (the former Transvaal Museum of Natural History)

WOPC = Weston Opitz Collection, Gainesville, USA



**Map 1:** All cited locations: Black circles 2018, red circles 2019.

## Supplement to Checklist

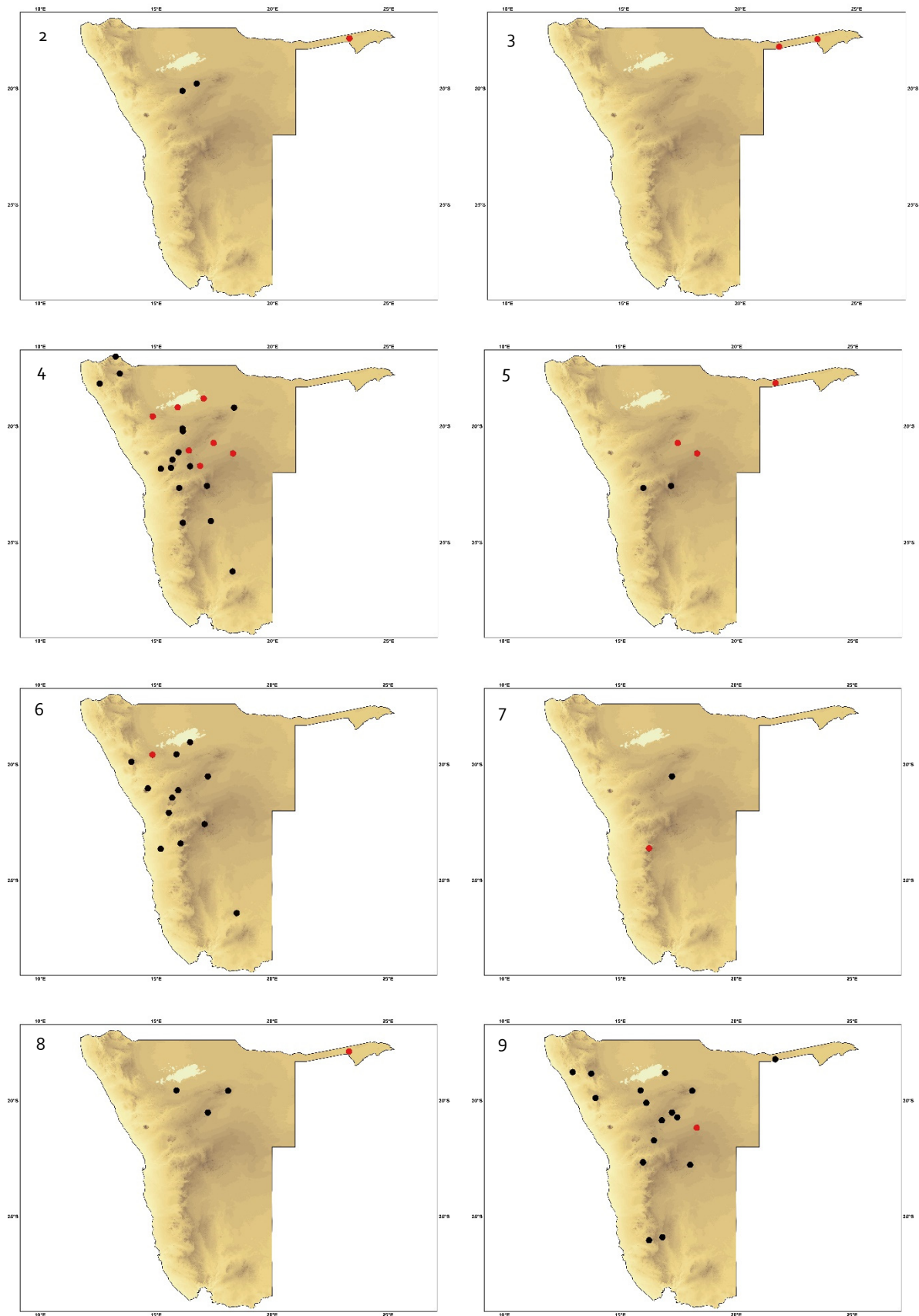
Subfamily TILLINAE

*Diplocladus louvelii* (Spinola, 1844). Map 2

Namibia, Region Sambesi, Susuwe NP, Nambwa, forest, S17°50.474' E23°18.694', 980 m, 22.03.2019, leg. R. Gerstmeier #17.

*Eucymatodera speciosa* (Gorham, 1883). Fig. 1, Map 3

Namibia, Region Kavango-East, Mahango NP, Rukange, S18°12.064' E21°40.643', 970 m, 20.03.2019, leg. R. Gerstmeier #15. Namibia, Region Sambesi, Susuwe NP, Nambwa, Campsite, S17°52.623' E23°19.081', 949 m, 23.03.2019, leg. R. Gerstmeier #18.



**Maps 2-9:** (2) *Diplocladus louvelii*; (3) *Eucymatodera speciosa*; (4) *Eucymatodera sp. 1*; (5) *Eucymatodera sp. 4*; (6) *Gyponyx sp. 1*; (7) *Menieroclerus nigropiceus*; (8) *Phloiocopus ferreti*; (9) *Phloiocopus sp. 1*.

Distribution: Namibia (**new country record**), Ethiopia, Tanzania, Kenya, Uganda, Zimbabwe (Gerstmeier 1991).

**Eucymatodera sp. 1.** (see Gerstmeier 2018), Map 4

Namibia, Region Otjozondjupa, Dinosaur Tracks, 67 km NE Omaruru, S21°02.525' E16°24.092', 1516 m, 01.03.2019, leg. R. Gerstmeier #1 (4 ex.). Namibia, Region Kunene, Kaoko Lodge Campsite, 6 km N Kamanjab, S19°34.514' E14°50.714', 1264 m, 02.03.2019, leg. R. Gerstmeier #2. Namibia, Region Oshana, Etosha NP, Okaukuejo, S19°10.949' E15°55.042', 1139 m, 04.-05.03.2019, leg. R. Gerstmeier #4 (9 ex.). Namibia, Reg. Oshikoto, Etosha NP, Namutoni, 1100 m, S 18°48'26.53", E 16°56'23.64", 07.03.2019, leg. R. Gerstmeier. Namibia, Region Oshikoto, Etosha NP, von Lindequist Gate, S18°48.146' E17°02.552', 1112 m, 07.03.2019, leg. R. Gerstmeier #5 (6 ex.). Namibia, Region Otjozondjupa, Farm Hebron, 14 km S Okakarara, S20°43.128' E17°27.625', 1348 m, 08.-09.03.2019, leg. R. Gerstmeier #6 (3 ex.). Namibia, Region Otjozondjupa, Farm Vergenoeg, 50 km W Otjinene, S21°10.055' E18°18.049', 1498 m, 12.-13.03.2019, leg. R. Gerstmeier #8. Namibia, Otjozondjupa, 25 km N Okahandja, 1500 m, 21°42.552'S/016°53.047'E, 3.2.2019, leg. H. Mühle #426.

**Eucymatodera sp. 4.** Fig. 2, Map 5

This species is separated from *Eucymatodera* sp. 1, because the pronotum of *Eucymatodera* sp. 4 is smooth.

Namibia, Region Otjozondjupa, Farm Hebron, 14 km S Okakarara, S20°43.128' E17°27.625', 1348 m, 08.-09.03.2019, leg. R. Gerstmeier #6. Namibia, Region Otjozondjupa, Farm Vergenoeg, 50 km W Otjinene, S21°10.055' E18°18.049', 1498 m, 12.-13.03.2019, leg. R. Gerstmeier #8. Namibia, Region Kavango-East, Mahangu Lodge, outside, S18°08.289' E21°40.684', 1003 m, 18.-20.03.2019, leg. R. Gerstmeier #14.

Subfamily CLERINAE

**Gyponyx sp. 1.** (see Gerstmeier 2018), Map 6

Namibia, Region Kunene, Kaoko Lodge Campsite, 6 km N Kamanjab, S19°34.514' E14°50.714', 1264 m, 02.03.2019, leg. R. Gerstmeier #2.

**Menieroclerus nigropiceus (Kuwert, 1893).** (see Gerstmeier 2018), Map 7

Namibia, Khomas, Namibgrens, 1820 m, 23°36.720'S/016°14.708'E, 11.2.2019, leg. H. Mühle #434.

**Phloiocopus ferreti (Reiche, 1849).** (see Gerstmeier 2018), Map 8

Namibia, Region Sambesi, Susuwe NP, Nambwa, Campsite, S17°52.623' E23°19.081', 949 m, 23.03.2019, leg. R. Gerstmeier #18.

**Phloiocopus sp. 1.** Map 9

Namibia, Region Otjozondjupa, Farm Vergenoeg, 50 km W Otjinene, S21°10.055' E18°18.049', 1498 m, 12.-13.03.2019, leg. R. Gerstmeier #8 (4 ex.). – Also recorded from Botswana.

**Thanasimodes robustus (Boheman, 1851).** (see Gerstmeier 2018), Map 10

Namibia, Region Otjozondjupa, Dinosaur Tracks, 67 km NE Omaruru, S21°02.525' E16°24.092', 1516 m, 01.03.2019, leg. R. Gerstmeier #1. Namibia, Region Otjozondjupa, Farm Vergenoeg, 50 km W Otjinene, S21°10.055' E18°18.049', 1498 m, 12.-13.03.2019, leg. R. Gerstmeier #8. – Also recorded from Botswana.

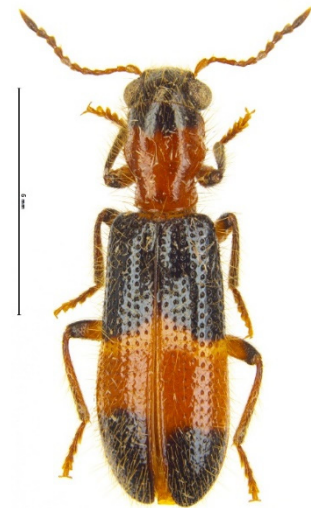
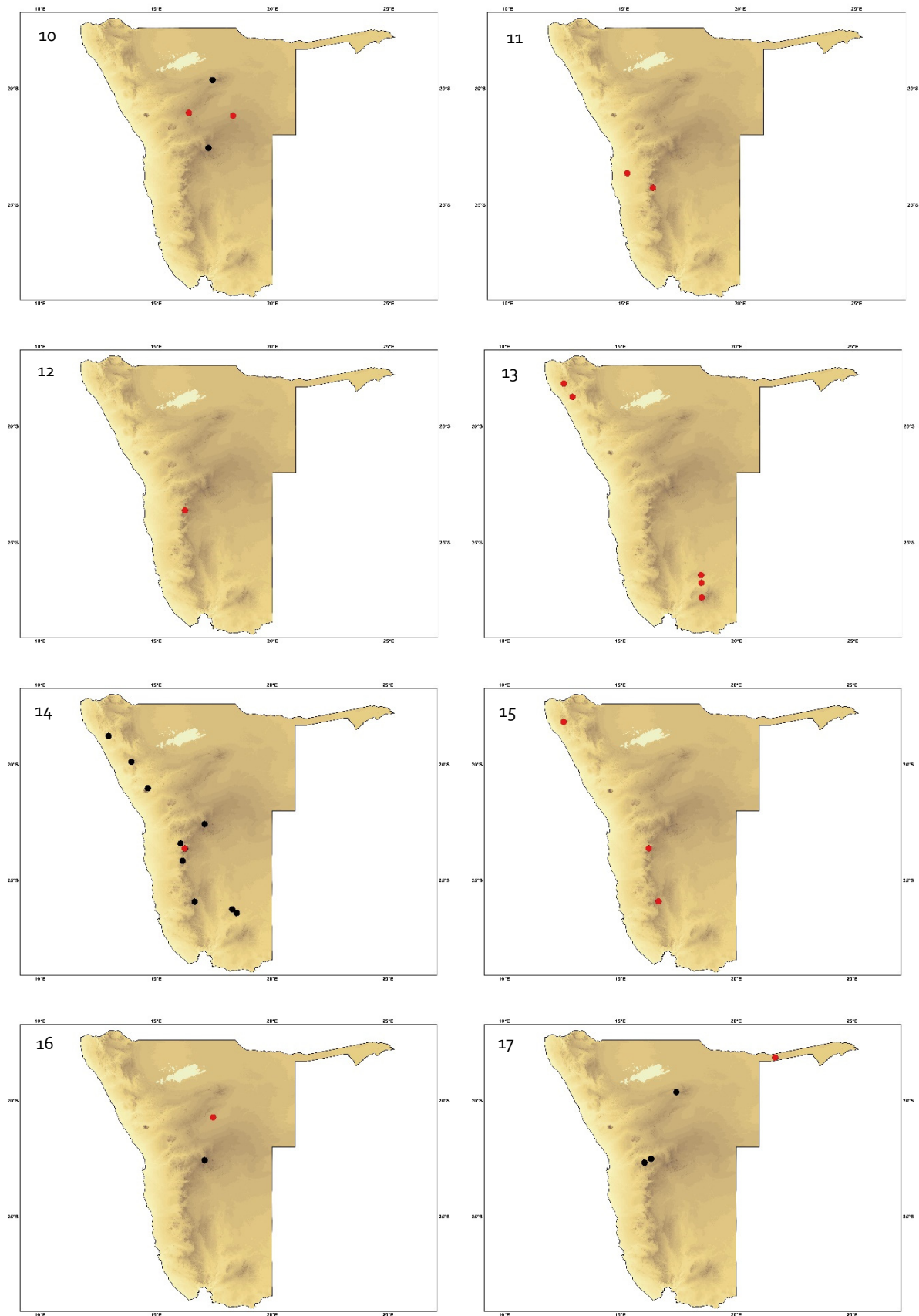


Figure 1 *Eucymatodera speciosa*.



Figure 2: *Eucymatodera* sp. 4.



**Maps 10-17:** (10) *Thanasimodes robustus*; (11) *Korynetes ligulus*; (12) *Korynetes nigratarsus*; (13) *Korynetes pelidnus*; (14) *Korynetes semistriatus*; (15) *Korynetes ustulatus*; (16) *Necrobia rufipes*; (17) *Prosymnus brevipenis*.

# Subfamily KORYNETINAE

***Korynetes ligulus* Opitz, 2018.** (see Opitz 2018), Map 11

Naukluft, Naukluft Park, 24°16'S 16°15'E, 26-X-1974, Endrödy-Younga (TMSA, 1 Paratype). Gobabeb, Kuiseb Riverm, ?-XI-1979, B. Wharton & Gray (TMSA, 2 Paratypes).

***Korynetes nigratarsus* Pic, 1948.** (see Opitz 2018), Map 12

Namibgrens Farm, 23°37'S – 16°14'E, 4-II-2010, beating, R. Müller (TMSA).

***Korynetes pelidnus* Opitz, 2018.** (see Opitz 2018), Map 13

Namibia, Purros, 300 m, 18°44'S – 12°56'E, 15-IV-2005, at light, R. Müller (TMSA). Purros, 18°44'S – 12°56'E, 15-IV-2005, 300 m, at light, R. Müller (TMSA, 1; WOPC, 2). Purros, (Hoaruzsib), 15-16-IV-2005, 300 m, W. Schawaller (TMSA, 4; WOPC, 3). Orupembe, 14-IV-2005, 700 m, W. Schawaller (TMSA, 3; WOPC, 2). Karas, 42 km SE Keetmanshoop, 26°44'.266"S – 18°29'387"E, 25-II-2012, 850 m, H. Mühle (RGCM, 3). Namibia, 40 km NE Keetmanshoop, 26°24'S – 18°28'E, 18-19-II-2010, 850 m, R. Müller (TMSA, 2; WOPC, 1). Namibia, Grünau, 42 km N, 27°22'.951"S – 18°30'936"E, 19-II-2012, 841 m, H. Mühle (WOPC, 2).

***Korynetes semistriatus* Spinola, 1844.** Map 14

Namibia, Khomas, Namibgrens 1820 m, 23°36.720'S/016°14.708'E, 11.2.2019, leg. H. Mühle #434 (RGCM).

***Korynetes ustulatus* Opitz, 2018.** (see Opitz 2018), Map 15

Namibia: 1820 m, Namibgrens farm, 23°37'S – 26°14'E. A second label reads: 4-5.2.2010; E-Y: 3856, at light, leg. Ruth Müller (TMSA). Namibia, Namibgrens farm, 23°37'S – 26°14'E, 4-5-II-2010, 1820 m, at light, Ruth Müller (TMSA, 5; SDEI, 1; WOPC, 2). 15 km E Helm[e]ringhausen, 25°54'S – 16°39'E, 17-II-2010, 1560 m, at light, Ruth Müller (TMSA, 1; WOPC, 1). Oru[m]pembe, 18°11'S – 12°33'E, 14-IV-2005, 677 m, light trap, Ruth Müller (TMSA,1).

***Necrobia rufipes* (Degeer, 1775).** (see Gerstmeier 2018), Map 16

Namibia, Region Otjozondjupa, Farm Hebron, 14 km S Okakarara, S20°43.128' E17°27.625', 1348 m, 08.-09.03.2019, leg. R. Gerstmeier #6.

***Prosymnus brevipenis* Opitz, 2016.** (see Gerstmeier 2018), Map 17

Namibia, Region Kavango-East, Mahangu Lodge, outside, S18°08.289' E21°40.684', 1003 m, 18.-20.03.2019, leg. R. Gerstmeier #14.

With this second checklist, the number of checked beetle species for Namibia increases to 45 species.

## Discussion

The 2019 expedition yielded an equal number of species (10 species) as in 2018, but differed considerably in regards to the species composition. Only four species were recorded in both years (Table 1).

This could either reflect the geographic and hence general ecological situation as the north eastern parts of Namibia are generally wetter and hotter, or be attributed to the better rainy season in 2018, whereas 2019 saw less rainfall in the north western parts of Namibia (nearest BIOTA Observatory Mutompo, So3: March/April 2018: ~110 mm; March/April 2019: ~20 mm). Numerous studies show the effects of rainfall on vegetation and plant communities (Reyer *et al.* 2013) but information on the impact of climate change and rainfall patterns on invertebrates is

**Table 1:** Number of species and specimens recorded during 2018- and 2019-expeditions, respectively. 'X' denotes species presence.

	2018		2019	
	Species	N	Species	N
<i>Diplocladus louvelii</i>	X	1	X	1
<i>Eucymatodera</i> sp. 1	X	3	X	25
<i>Eucymatodera</i> sp. 3	X	1	–	–
<i>Eucymatodera</i> sp. 4	–	–	X	3
<i>Eucymatodera speciosa</i>	–	–	X	2
<i>Teloclerus</i> sp.	X	1	–	–
<i>Wittmeridecus</i> sp.n.	X	2	–	–
<i>Gyponyx</i> sp. 1	X	10	X	1
<i>Phloiocopus ferreti</i>	–	–	X	1
<i>Phloiocopus</i> sp. 1	X	3	X	4
<i>Phloiocopus vagedorsatus</i>	X	8	–	–
<i>Thanasimodes robustus</i>	–	–	X	2
<i>Korynetes semistriatus</i>	X	4	–	–
<i>Necrobia rufipes</i>	–	–	X	1
<i>Prosymnus adustus</i>	X	1	–	–
<i>Prosymnus brevipenis</i>	–	–	X	1
<b>Σ</b>	<b>10</b>	<b>34</b>	<b>10</b>	<b>41</b>



limited (Barnett & Facey 2016). In arid ecosystems, arthropods inhabit a wide range of microhabitats (Doblas-Miranda *et al.* 2009; Hadley & Szarek 1981) and comprise a wide variety of ecosystem functions (e.g. herbivores, predators, pollinators, seed dispersers, decomposers) and are important components of food webs and nutrient cycles (Prather *et al.* 2013). Hence direct and indirect effects (via vegetation) of rainfall on arthropod communities and likewise on the clerid community are likely. A new investigation on ground-dwelling arthropods in an arid savannah showed that the arthropod community composition, as well as activity density, was determined by intermediate term precipitation of 15 to 30 days, not by short- or long-term precipitation (Fischer *et al.*, in review).

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